WHAT IS CLAIMED IS:

1. A method of generating a color separation table that stores grid point data of printing material colors used in a printing apparatus correspondingly to grid points that are defined by predetermined input colors for converting the predetermined input colors to the printing material colors, which include a special color other than colors corresponding to vertexes of a solid formed by the grid points, said method comprising:

special color point setting step for setting a point of the special color on a side connecting two vertexes of the solid;

table data generating step for, for the grid points on each of a line connecting two vertexes of black and white on the solid, a line running on the surface of the solid and connecting a plurality of vertexes of the solid and a line running on the surface of the solid and connecting a plurality of the vertexes of the solid as well as the point of the special color, obtaining the grid point data based on the color measurement of predetermined patches; and

interpolation step for dividing the solid by the lines into a plurality of solids which include said line as a side and executing an interpolation process on the plurality of divided solids based on the grid point data of the grid points on the lines to obtain grid point data for the grid

points located on other than the lines in each of the divided solids.

2. A method as claimed in claim 1, further comprising step for setting a point of secondary color of the special color and a color of the vertex that is one of two vertexes of the side on which the special color is set, also for the grid points on a line running on the surface of the solid and connecting a plurality of the vertexes of the solid as well as the point of the secondary color, obtaining the grid point data based on the color measurement of predetermined patches, dividing the solid by the lines including the line containing the point of the secondary color, and executing the interpolation process on the plurality of divided solids based on the grid point data of the grid points on the lines to obtain grid point data for the grid points located on other than the lines.

3. A method as claimed in claim 1, wherein said interpolation step, when executing the interpolation on the plurality of divided solids to obtain the grid point data of the divided solids, for the divided solid including the line containing the point of the special color or the divided solid including the line containing the point of a secondary color of the special color and a color of the vertex, executes a enlargement process in which a coordinate of the point of the special color or the point of the secondary

color is moved to one of two vertexes of the side on which the points of the special color or the secondary color are set, executes the interpolation process on the enlarged solid, executes a reduction process in which the coordinate of the point of the special color or the point of the secondary color is moved to the original coordinate, and obtains the grid point data of the grid points on the original divided solid based on the grid points and grid point data obtained by the interpolation on the enlarged solid.

4. A method as claimed in claim 1, wherein each of the divided solids is a tetrahedron and the interpolation process is executed such that the tetrahedron is divided into a plurality of triangles and the interpolation is executed on each of the divided triangles based on the grid point data of the grid points on three sides of said each triangle to obtain the grid point data located on the surface of said each triangle.

5. A method as claimed in claim 4, wherein the interpolation process based on the grid point data of the grid points on three sides of the triangle is a process based on the grid point data on the two sides of three sides, or a process using a finite element method based on the grid point data on any of one side, two sides or three sides of three sides.

6. A method as claimed in claim 1, wherein the printing material colors other than the special color are four colors of cyan, magenta, yellow and black or six colors of light cyan and light magenta in addition to cyan, magenta, yellow, black.

7. A method as claimed in claim 1, wherein the special color is a color of orange.

8. A method as claimed in claim 1, wherein the predetermined input colors are colors of red, green and blue.

9. An image processing apparatus for generating a color separation table that stores grid point data of printing material colors used in a printing apparatus correspondingly to grid points that are defined by predetermined input colors for converting the predetermined input colors to the printing material colors, which include a special color other than colors corresponding to vertexes of a solid formed by the grid points, said apparatus comprising:

special color point setting means for setting a point of the special color on a side connecting two vertexes of the solid;

table data generating means for, for the grid points on each of a line connecting two vertexes of black and white

on the solid, a line running on the surface of the solid and connecting a plurality of vertexes of the solid and a line running on the surface of the solid and connecting a plurality of the vertexes of the solid as well as the point of the special color, obtaining the grid point data based on the color measurement of predetermined patches; and

interpolation means for dividing the solid by the lines into a plurality of solids which include said line as a side and executing an interpolation process on the plurality of divided solids based on the grid point data of the grid points on the lines to obtain grid point data for the grid points located on other than the lines in each of the divided solids.

10. An image processing apparatus as claimed in claim 9, further comprising mean for setting a point of secondary color of the special color and a color of the vertex that is one of two vertexes of the side on which the special color is set, also for the grid points on a line running on the surface of the solid and connecting a plurality of the vertexes of the solid as well as the point of the secondary color, obtaining the grid point data based on the color measurement of predetermined patches, dividing the solid by the lines including the line containing the point of the secondary color, and executing the interpolation process on the plurality of divided solids based on the

grid point data of the grid points on the lines to obtain grid point data for the grid points located on other than the lines.

11. An image processing apparatus as claimed in claim 9, wherein said interpolation means, when executing the interpolation on the plurality of divided solids to obtain the grid point data of the divided solids, for the divided solid including the line containing the point of the special color or the divided solid including the line containing the point of a secondary color of the special color and a color of the vertex, executes a enlargement process in which a coordinate of the point of the special color or the point of the secondary color is moved to one of two vertexes of the side on which the points of the special color or the secondary color are set, executes the interpolation process on the enlarged solid, executes a reduction process in which the coordinate of the point of the special color or the point of the secondary color is moved to the original coordinate, and obtains the grid point data of the grid points on the original divided solid based on the grid points and grid point data obtained by the interpolation on the enlarged solid.

12. An image processing apparatus as claimed in claim 9, wherein each of the divided solids is a tetrahedron and the interpolation process is executed such that the

tetrahedron is divided into a plurality of triangles and the interpolation is executed on each of the divided triangles based on the grid point data of the grid points on three sides of said each triangle to obtain the grid point data located on the surface of said each triangle.

13. A image processing apparatus as claimed in claim 12, wherein the interpolation process based on the grid point data of the grid points on three sides of the triangle is a process based on the grid point data on the two sides of three sides, or a process using a finite element method based on the grid point data on any of one side, two sides or three sides of three sides.

14. An image processing apparatus for using a color separation table that stores grid point data of printing material colors used in a printing apparatus correspondingly to grid points that are defined by predetermined input colors for converting the predetermined input colors to the printing material colors, which include a special color other than colors corresponding to vertexes of a solid formed by the grid points, to generate data of the printing material colors obtained by converting the predetermined input colors,

wherein the color separation table is generated by a process comprising:

special color point setting step for setting a point

of the special color on a side connecting two vertexes of the solid;

table data generating step for, for the grid points on each of a line connecting two vertexes of black and white on the solid, a line running on the surface of the solid and connecting a plurality of vertexes of the solid and a line running on the surface of the solid and connecting a plurality of the vertexes of the solid as well as the point of the special color, obtaining the grid point data based on the color measurement of predetermined patches; and

interpolation step for dividing the solid by the lines into a plurality of solids which include said line as a side and executing an interpolation process on the plurality of divided solids based on the grid point data of the grid points on the lines to obtain grid point data for the grid points located on other than the lines in each of the divided solids.

15. A program that is read by a computer to execute a process of generating a color separation table that stores grid point data of printing material colors used in a printing apparatus correspondingly to grid points that are defined by predetermined input colors for converting the predetermined colors the printing material colors, which include a special color other than colors corresponding to vertexes of a solid formed by the grid points, said process

of generating comprising:

special color point setting step for setting a point of the special color on a side connecting two vertexes of the solid;

table data generating step for, for the grid points on each of a line connecting two vertexes of black and white on the solid, a line running on the surface of the solid and connecting a plurality of vertexes of the solid and a line running on the surface of the solid and connecting a plurality of the vertexes of the solid as well as the point of the special color, obtaining the grid point data based on the color measurement of predetermined patches; and

interpolation step for dividing the solid by the lines into a plurality of solids which include said line as a side and executing an interpolation process on the plurality of divided solids based on the grid point data of the grid points on the lines to obtain grid point data for the grid points located on other than the lines in each of the divided solids.

16. A storage medium that stores a program readably by a computer, the program being used for executing a process of generating a color separation table that stores grid point data of printing material colors used in a printing apparatus correspondingly to grid points that are defined by predetermined input colors for converting the

predetermined colors the printing material colors, which include a special color other than colors corresponding to vertexes of a solid formed by the grid points, said process of generating comprising:

special color point setting step for setting a point of the special color on a side connecting two vertexes of the solid;

table data generating step for, for the grid points on each of a line connecting two vertexes of black and white on the solid, a line running on the surface of the solid and connecting a plurality of vertexes of the solid and a line running on the surface of the solid and connecting a plurality of the vertexes of the solid as well as the point of the special color, obtaining the grid point data based on the color measurement of predetermined patches; and

interpolation step for dividing the solid by the lines into a plurality of solids which include said line as a side and executing an interpolation process on the plurality of divided solids based on the grid point data of the grid points on the lines to obtain grid point data for the grid points located on other than the lines in each of the divided solids.